Legal Information

Product Warranty

Products manufactured or distributed by IngMar Medical Ltd., are fully warranted, covering materials and workmanship, for a period of one year from the date of shipment, except for products with stated warranties other than one year. IngMar Medical reserves the right to perform warranty service(s) at its factory, at an authorized repair station, or at the customer's installation.

IngMar Medical's obligations under this warranty are limited to repairs, or at IngMar Medical's option, replacement of any defective parts of our equipment, except fuses and batteries, without charge, if said defects occur during normal service. Claims for damages during shipment must be filed promptly with the transportation company. All correspondence concerning the equipment must specify both the model name and number, and the serial number as it appears on the equipment. Improper use, mishandling, tampering with, or operation of the equipment without following specific operating instructions will void this warranty and release IngMar Medical from any further warranty obligations.

The above is the sole warranty provided by IngMar Medical, Ltd. No other warranty, expressed or implied, is intended. Representatives of IngMar Medical are not authorized to modify the terms of this warranty.

For factory repair service, call:
Toll free 1-800-583-9910
International: (412) 441-8228
Facsimile: (412) 441-8404

Limitation of Liability

IngMar Medical Ltd.'s liability, whether arising out of or related to manufacture and sale of the goods, their installation, demonstration, sales representation, use, performance, or otherwise, including any liability based upon above defined product warranty, is subject to and limited to the exclusive terms and conditions as set forth, whether based upon breach of warranty or any other cause of action whatsoever, regardless of any fault attributable to IngMar Medical, and regardless of the form of action (including, without limitation, breach of warranty, negligence, strict liability, or otherwise).

THE STATED EXPRESSED WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR NONINFRINGEMENT.

IngMar Medical, Ltd. shall not be liable for, nor shall buyer be entitled to recover, any special incidental or consequential damages or for any liability incurred by buyer to any third party in any way arising out of or relating to the goods.

Intended Use

The QuickLung test lung may be used for ventilator performance verification. The user has to bear in mind, however, that the design of modern ventilators is complex and these devices incorporate a great variety of features and performance parameters.

The purpose of the lung simulator within the context of ventilator performance verification is solely to assist in implementing test procedures mandated or recommended by the ventilator manufacturer.

WARNING!

It is mandatory to always follow ventilator manufacturers' instructions and recommendations regarding performance verification procedures. IngMar Medical, Ltd. does not recommend any specific ventilator test or calibration procedures.

Principle of Operation

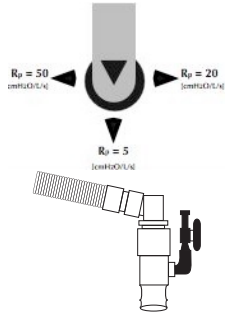
QuickLung is a precision lung simulator that operates with a combination of springs and orifices to represent a number of different settings for the respiratory parameters Resistance and Compliance. The maximum volume is limited by a mechanical limit to the opening angle of the bellow panels. Resistances are parabolic, by virtue of their design as simple orifices. Compliance is linear since extension springs and a torsion bar are used to create recoil forces. Optionally, leaks are created by an orifice venting to atmosphere and controlled through a stopcock.

Operation

Always ensure that the elbow connector is fully inserted into the connector port on top of the QuickLung. You will feel a snap action when it is properly engaged. To remove the elbow, pull straight out (vertically) while holding down the QuickLung with your other hand.

To change the setting of Resistance, either

- turn the elbow connector so that its ***black triangle*** is aligned with the arrows on the QuickLung panel
  or
- turn the leak adapter connector so that the ***stopcock attachment*** is aligned with the respective arrows on the QuickLung panel.



It is the responsibility of the user to use only 90° positions; in-between positions will yield undefined results.

CAUTION ⚠

When exposing the QuickLung to large pressure fluctuations (air travel), always keep resistor selector on one of the Rp settings, and not on OFF.

The following spring combinations result in the recommended Compliance settings (QuickLung Jr. in parenthesis).

All springs disengaged → C = 50 (15)
Both outer springs engaged → C = 20 (6)
All 3 springs engaged → C = 10 (3) [mL/cmH2O]

Calibration

Calibrated QuickLung information is shown in "Technical Data" below. Please contact IngMar Medical for information on purchasing a calibrated version of the QuickLung. IngMar Medical recommends annual re-calibration.

Maintenance

This device is maintenance-free. Please contact IngMar Medical for information on replacement parts.

Technical Data

Compliance: Note: Static compliance is measured as the change in unit Volume per change in unit Pressure in steady-state, isothermal condition of a ventilation cycle, including compliance resulting from gas compressibility. (QuickLung Jr. in parenthesis)

C_{50} (C_{15})	0.5 (0.15) L/kPa +/- 10% at 500 (200) mL tidal volume
C_{20} (C_{6})	0.2 (0.06) L/kPa +/- 10% at 500 (200) mL tidal volume
C_{10} (C_{3})	0.1 (0.03) L/kPa +/- 10% at 300 (100) mL tidal volume

Resistance:* Note: Parabolic (orifice) resistor pressure drops selected from ASTM F1100 (K values), for inspiratory flows at 2, 1, and 0.5 L/s, respectively.

Rp5	K 2.70 +/- 20% (equivalent orifice size = 8.48mm) pressure drop 10.80 cmH2O at 2 L/s
Rp20	K 17.61 +/-20% (equivalent orifice size = 5.31mm) pressure drop 17.61 cmH2O at 1 L/s
Rp50	K 108.70 +/-20% (equivalent orifice size = 3.37mm) pressure drop 27.20 cmH2O at 0.5 L/s

* pursuant definitions of ASTM F1100 and IEC 60601-2-12

Weight: 3 lbs 8 oz (1.6 kg)
Dimensions 11 x 7.3 x 2 inches (280 x 185 x 52 mm)

Contact Information

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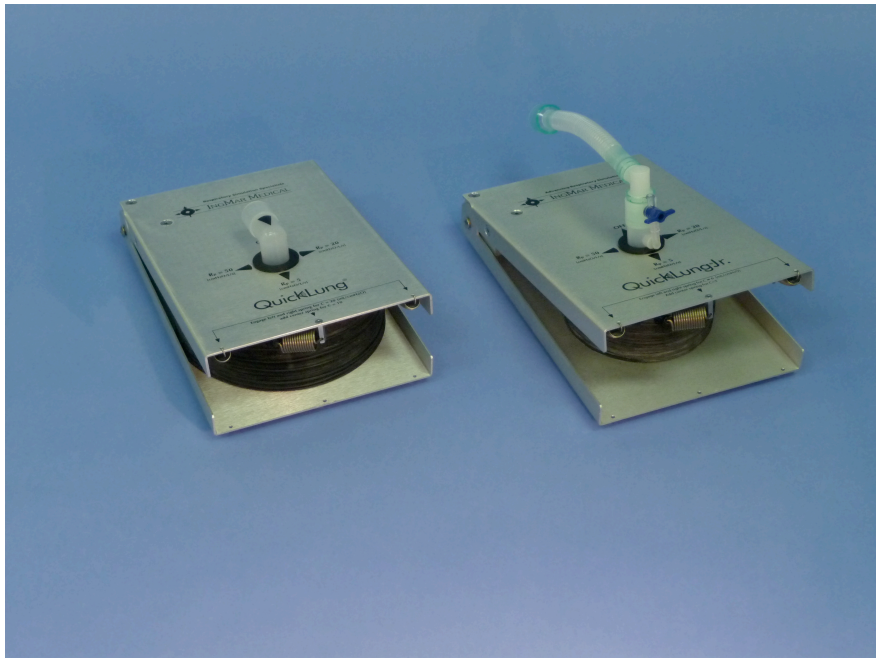

QuickLung®
Precision Test Lung

For calibrated and non-calibrated versions of QuickLung® and QuickLung® Jr.

User's Quick Reference